

5-

SPINAL IRRITATION;

ITS

HISTORY, DIAGNOSIS, PATHOLOGY, AND TREATMENT,

ILLUSTRATED BY CASES.

AN ESSAY,

READ BEFORE THE

NEW-YORK MEDICAL AND SURGICAL SOCIETY,

NOVEMBER, 1839.

BY JOHN H. GRISCOM, M. D.

"Non numerandæ sed perpendendæ observationes." — *Morgagni*.

[FROM THE N. Y. JOURNAL OF MEDICINE AND SURGERY.]

NEW-YORK:

PRINTED BY HOPKINS & JENNINGS.

1840.

SPINAL IRRITATION

HISTORY, DIAGNOSIS, PATHOLOGY AND TREATMENT

ILLUSTRATED BY A. B. BAKER

AN ESSAY

BY JOHN H. GRISWOLD, M.D.

NEW-YORK MEDICAL AND SURGICAL SOCIETY

NEW-YORK: 1880

BY JOHN H. GRISWOLD, M.D.

"The symptoms and signs of spinal irritation." - 1880

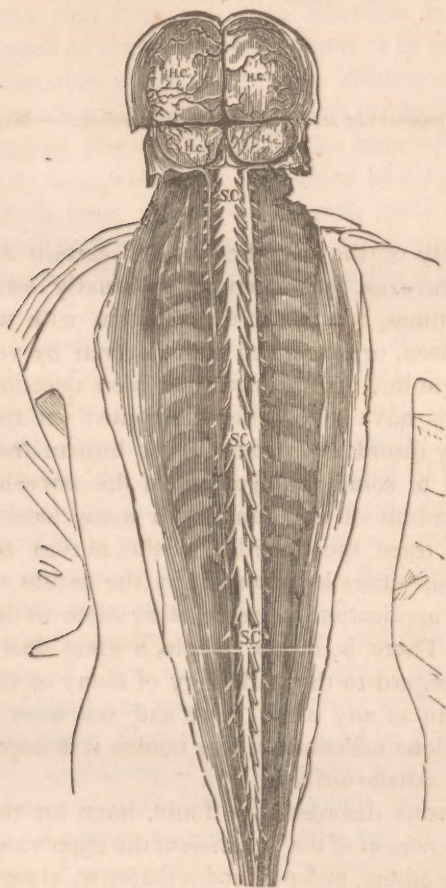
Printed by J. H. B. BAKER, at the office of the Society.

NEW-YORK:

PRINTED BY HENRY A. LEECH.

1880

POSTERIOR VIEW OF THE BRAIN AND SPINAL CORD IN CONNECTION.



The spinous processes of the vertebræ, and a portion of the skull being removed, the Spinal Cord S.C. S.C. S.C., the cerebrum H.C. H.C., and the cerebellum H.c. H.c. are exposed to view. The nerves arising from the spinal cord are also exposed at their origin, showing the parts believed to be involved in the disease denominated, "Spinal Irritation."*

* By referring to No. 85 of the "Family Library," the reader may obtain a fuller description of the anatomy and functions of these parts.

SPINAL IRRITATION.

"*Non numerandæ sed perpendendæ observationes.*" — MORGAGNI.

THE propriety of the classification of certain diseases under the term *neuroses*, has become eventually established, and although, at times, because of the ultraism with which all diseases have been, or attempted to be, driven by various writers into this single line, its propriety has been questioned, and nervine remedies have fallen into disrepute: yet the proofs that a great many disorders incident to the human frame, can only be attributed to some derangement of the nervous system, are too clear to admit of any doubt. In many local affections we can directly trace the disorder to the nerves supplying the affected organ, either by autopsia, by the nature or location of the remedial application, or some other more or less unequivocal means. There is, on the whole, a great deal more uncertainty with regard to the pathology of many of these neuralgic disorders than of any other kind, and we meet with a great many anomalous affections whose nature it is impossible for us to determine satisfactorily.

Many nervous disorders, no doubt, have for their proximate cause a derangement of the *function* of the supplying nerve, while a great many others, and perhaps a majority, classed among the neuralgiæ, depend for their existence upon an inflammation of the neurileme, or of the nerve itself. This latter theory is admitted, I believe, on all sides, as it is a matter more susceptible of proof.

Still there are a great number of affections evidently nervous, that is, depending for their existence solely upon some kind of derangement of one or more nervous trunks or branches, which we cannot presume to be owing to an inflammation of its nerve, or its covering, or to a loss of its function. The suddenness of

their accessions and cessations, the shortness of their duration, the great and frequent changes of their localities, besides being generally unaccompanied by any febrile reaction, all conspire to preclude the idea that these neuralgic disorders, consist of an *inflammation* such as we know other tissues to be affected with. The incomprehensible nature of nervous influence, and of the connection of mind with matter, although undoubtedly made through the nerves, place far from us the hope of ever being able satisfactorily to elucidate the pathology of disorders which have their seat in these mysterious tissues, particularly those which are classed under the popular and comprehensive name of "nervous disorders," such as excitability of the whole nervous system, &c.

From what I have been able to learn of the operations of this tissue in health and disease, the maladies incident to it may be divided into three classes, as regards their proximate cause:—
1st. Those which depend upon an inflammation of the nerve or of the neurileme, the mechanical distension of the enlarged blood-vessels exerting a compressing force upon the material of the nerve, whereby its peculiar powers are altered or arrested in their action, and violent pain produced. A supposed instance of this class is neuralgia, or tic douloureux.

2d. Those which depend upon a loss or diminution of the peculiar *function* of a system of nerves, a single nerve, a branch or a filament, without any apparent alteration in the structure or condition of the part. Under this head may be classed total or partial paralysis, numbness of various parts, amaurosis, &c.

3d. A peculiar, and until lately not much noticed, condition of a certain set of nerves, which cannot be said to consist either of inflammation, or of loss of function, properly so called. This condition may be, perhaps, better designated by the term *irritation* than any other, and having crept into very general use, it may be received as a legitimate expression, though its precise meaning may not be very clearly defined. It is to the last of these three classes that I wish at present to confine my attention.

History.—Considerable notice has been, of later days, drawn towards this singular disorder on both sides the Atlantic, in Great Britain and Germany especially. In the various papers that have been given to the world upon this class of diseases, the writers con-

fine their attention chiefly to that system of nerves which originates in the spinal cord, known as the spinal nerves. We have no reason to suppose that such a disorder may not happen to any other system of nerves; but if it ever does, the symptoms have been too little known to well define it, when independent of that of the spinal nerves. If the latter may be involved in this irritation, the cerebral and ganglionic systems may be also, but the effect of such a location of the irritation not being so apparent, we must remain in doubt respecting it, until some more acute observer shall arise to throw another gleam of light into the ~~Merian~~ ^{Cimmerian} darkness in which the subject is still involved.

This view, however, is even now not without its advocates, and they among the magnates of medicine. *Segond* believes the disease known as "vegetable colic" to be a neuralgia of the great sympathetic. *M. Pascal* also thinks this disease is situated in the ganglionic system, and found the employment of internal medicines to relieve the pain and irritation, and of external revulsives, was far preferable to obtaining large evacuations by purgatives and bleeding. *M. Marquand*, who is said never to have lost a patient with that disease, believed in its nervous origin, and treated it by opium and purgatives. *M. Andral*, speaking of the *lead colic*, says, "to us it seems the lead colic is a nervous disease, in which there would seem to be especially implicated the spinal marrow and abdominal plexus of the grand sympathetic." *M. Rauque*, so well known by his work on lead colic, "places the primitive seat of this disease in the portions of the pneumogastric and trisplanchnic which are distributed to the stomach, the intestinal canal, the liver, the kidneys, and the bladder; and the secondary seat in those portions of the cerebro-spinal system which supply either the painful limbs or integuments of the head." Similar views may doubtless be entertained with respect to many other diseases of the involuntary organs. That the spinal nerves are very subject to this singular disorder, the cases which are about to be related will amply prove, and together with those of other writers, must remove every loop upon which a doubt could be hung. And there can be as little doubt that it is a *special, determinate, and well defined disease*—an irritation of the spinal nerves at their roots; sometimes idiopathic, at others symptoma-

tic—existing alone, or conjoined with other disorders of the body, and frequently having a powerful and extensive control over them, and producible by specific causes. The location and the treatment of this disease, show that irritation of these nerves may and does exist independently of any connection with the cerebral or ganglionic nerves. Its symptoms are different from those of apoplexy or amaurosis, unlike those of paralysis or tetanus, and vary essentially from those which designate either an *inflammation* or loss of function of any nerves. In this condition of *irritation*, the functions of the spinal nerves are only *disordered*, not *lost* or impaired. Their peculiar powers, in many instances, are rather increased in intensity, than diminished.

The anatomical connection of the ganglionic, with the spinal system of nerves, the one depending apparently for its existence upon the other, fairly justifies the inference that the latter being diseased, the former *may be* also, and its irritation be evinced in the organs supplied by it. We shall find many instances in which pressure upon the vertebræ will produce disordered action of the heart, stomach, or some other organ, directly under the ganglionic, and independent of the spinal influence. How can such pressure develope such symptoms? We cannot believe by the mechanical disturbance of the ganglia themselves, as they cannot be considered as within reach of the pressure; but by the increased spinal irritation being passed by reflection through the ganglionic masses, likewise affected.

I cannot avoid alluding to the belief that practitioners do not sufficiently bear in mind the controlling influence which a derangement of these nerves has often over the appearances of disease of other organs. If they will but recollect the extensive and commanding direction which this and other systems of nerves have over all the other functional actions of the economy, they must see that any accident happening to them, or one of them, will, *pari passu*, affect the health of one or more of those functions. When a derangement occurs in the functional action of any organ, whether circulatory, respiratory, chylopoetic, cutaneous, or muscular, it must have had its commencement somewhere; and if it has been sudden and extensive in its access, and is constantly varying in its symptoms, we have powerful

reasons for placing the origin to the credit of the spinal system of nerves; and he is recreant to his trust as a physician, who overlooks this unequivocal source of disease, which, notwithstanding its Protean forms, is so easily reduced, and by the removal of which the entire aspect of the, apparently, most severe, dangerous, and even long standing affections, may be, in a very short period, totally changed for the better.

But to proceed to a more definitive description of this singular disorder. As it appears under a great variety of aspects, some cases differing very essentially from others in general appearance, a correct view of it may perhaps be more easily given and understood, by a relation of a few of the more striking cases which have fallen under my notice. I have observed, however, that almost all the cases present some appearances which may be considered as approaching very nearly to the rank of diagnostic symptoms. They are sometimes seen in a very diminished degree, and occasionally are entirely wanting, but a majority of the cases which I have seen, have possessed them, at some period or other of the disease.

One of the most striking features, as may be observed, is the close similitude borne by this, in appearance, to other acute diseases. And herein lies the net, in which the unwary practitioner is very likely to be caught, and in whose meshes, I have no doubt, many a skilful man has been entangled — whence a little deeper reflection as to the probable origin of unaccountable symptoms, might have liberated him. Having been thus puzzled myself and seen others placed in the same predicament, and having of later days frequently extricated myself and my patients from difficulties before unaccountable, by the most simple remedies, I may be permitted to use these expressions.

Cases of various disorders are frequently related in the Journals, which appear to defy the most skilful applications, whose symptoms are attributed to a variety of causes, either intestinal, muscular, or generally something equally obedient to treatment, — and yet unaccountable, after an obstinate resistance, — still I find in the relations no attempt to discover the very probable cause of many of them in the spinal nerves. For example, a striking case of this kind is given in pages 36 and 37 of the No. for August, 1836, of the U. S. Med. and Surg. Journal, copied from a

foreign periodical, wherein many of the most prominent characteristics of spinal irritation are mentioned — undoubtedly the cause of the erratic pains so strongly noticed ; “ puerperal neuralgia ” even being the title of the case. And yet no attempt is made to trace the neuralgia to its source ; but a medicinal treatment of pills, powders and potations, of a fortnight’s duration, takes the place of one or two applications to the spine, which would in all probability in two days have relieved the patient of her pains.

Cases very similar to this have fallen under my own care, and I have been surprised to observe how frequent has been the occurrence of spinal irritation in puerperal women.

Case 1st. — One case in particular, I at this moment recollect, that of Mrs. P., who within a fortnight after parturition, was seized with distressing pains all over the body, conjoined with such feelings of prostration and lassitude, that she was unable to assist herself in the smallest matter, even to nursing her infant. Applying to the spine for information, I found great tenderness along its entire course, pressure increasing the rheumatic feeling in different parts to an intense degree, and leaving this effect for a long time after the pressure was removed. A long blister over the vertebræ relieved the pain and debility immediately ; they returned in a partial degree afterwards, but finally, gradually disappeared without farther application.

Another prominent symptom in most cases, is *exalted sensibility of the skin*. This is so frequent and well marked, as to have invited its classification as a *diagnostic* of spinal irritation, yet I am not fully prepared to adopt it as such ; further observation is requisite prior to such a step. It is however, so frequent and prominent a symptom, and as far as I have seen so peculiar to this state of the spinal nerves, that whenever it does exist, there is immediate ground for suspecting the existence of the disorder under notice. Its detection is very easy. The finger cannot touch the skin of the patient at any point within the range supplied by the diseased nerves, without eliciting a marked expression of uneasiness and pain ; so sensitive is it sometimes that the attempt to lay the finger on the pulse excites the same sensations. And yet *manipulation* is requisite in many instances, to develope

this condition—for the pressure of the clothing, or of the body on the bed, does not evince it.

Another circumstance frequently observed in connection with this disease, relates to the *intellect*. Individuals who are naturally of a bright and cheerful mind, under its influence, become dull, and inanimate, and lose their mental energies, while the sensibilities of body, as well as of mind, are benumbed, unless roused into action by the nurse or medical attendant.

This circumstance is principally, and perhaps only observable, when the cervical portion of the cord is the seat of the affection, and then it will require but a moderate extension of the imagination to suppose the medulla oblongata to be similarly involved, and this symptom is accounted for.

Again, as one of the most prominent symptoms of this disease, we almost invariably discover a peculiar *lassitude of the whole body* disabling the patient from the least exertion, and rendering him careless and unconcerned of important matters. There is a desire to be continually in a recumbent position; he lies in bed upon his back, and the least motion seems to cause uneasiness, and often positive pain.

Finally, there is the symptom which may be considered as the *test* of the existence of this peculiar disorder, viz. *tenderness of the vertebræ upon pressure*, with a simultaneous pain in the anterior part of the body, at the distal extremity of the nerves, which are irritated by the pressure. Connected with this tenderness, it will be observed, that at the diseased part of the column the vertebra appears to yield a little to the pressure,—to sink in between the adjacent bones, while at the sound parts, the vertebræ are all stiff, and unyielding to the strongest pressure. It will sometimes, though rarely happen, that a case will present most of the peculiar symptoms here noticed except this last—cases in which this test of tenderness only is wanting to convince us of the existence of the disease. There are many reasons to suppose that irritation of the spinal cord may be present when it is not evinced by this means, and counter irritation will be found frequently of as much service where tenderness is absent as where it is present. These, as far as my observations have extended, constitute, the most important of the general features of spinal irritation. Each case will present, usually,

something different from all others; for the phases of nervous diseases are innumerable, terminable only with the opportunities for their exhibition.

The two following cases of this disease, in its idiopathic form, present most of its peculiar marks in a very prominent degree.

Case II.—Extensive implication of the cord, simulating pleuritis and rheumatism; morbid sensibility of the skin. Cure by counter-irritation.—On the 29th Jan. 1836, I was called to see Hester M—, æt. 32. She complained of very severe pain in almost every part of her body. Her whole head felt painful and tender; even the eyes were so sore, she could not press them with the finger. In the shoulders and through the chest sharp pains were constantly felt, somewhat resembling pleuritis, though the pain was not increased by a deep inspiration. When I laid my hand on her shoulders, or pressed the clavicle, even with the weight of the finger merely, she winced and shrank from the touch. In the gastric, hepatic, and splenic regions, the pains were the same, and very closely simulated a high state of acute inflammation of the organs beneath. In the lumbar region also, as far down as the hips, inclusive, the pains existed, and occasioned severe suffering in walking. From the shoulders, the pain extended down as far as the elbows, but no farther; nor did they go lower than the hips. Conjoined with the sense of deep seated pains in all the parts enumerated, there was a peculiar tenderness in every part of the cutaneous covering of these places, so great that the patient would shrink from apprehension if the finger were pointed near her, and expressed great suffering when she was touched, though lightly. As there was no symptom of fever or other constitutional disturbance, and the tongue was clean, and appetite good, the diagnosis was at first very puzzling; but the thought crossing my mind, that these anomalous symptoms could only be referred to some morbid condition of the supplying nerves, I directed my inquiries to the spine, and immediately detected the origin of the difficulty. Upon pressing with the fingers along the spine, commencing at the neck, all the painful feelings of the patient were instantly aggravated, as the fingers came opposite each successive part. All the pains, deep-seated and superficial, were increased to an agoniz-

ing degree by the pressure on the vertebræ, shooting through and around from the spine forward. The skin covering the spinal column, appeared also to participate in the general tenderness. It was about a week since the patient became indisposed, gradually growing worse. No satisfactory cause could be ascertained for the disorder.

The indications were plain, and the treatment simple. Two dozen cups were directed to be placed along the course of the spine, upon each side from the neck to the sacrum. The application was made in a few hours, and before the operation was half done, Mrs. M. experienced very great relief, and at the close of it she was entirely free from pain; and with the exception of the debility consequent upon the disease and the remedy, was as well as ever. On the following day she was entirely well, and my visits were discontinued.

Case III. — Extensive and protracted irritation long mistaken for other diseases; cough, obscuration of the intellect; morbid sensibility of the skin. Cure by counter-irritation. — Mrs. Terry, of No. —, Stanton-st. was first seen 23d Feb. 1836. She is of spare form, delicate looking, and of slender constitution. Has had poor health for four years back, not having passed a fortnight at a time in the enjoyment of robust health, and freedom from pain during that period. She is 26 years old, and has had four children. Almost the first symptom of disordered health which she recollects to have felt, was a heavy dull pain through the hips, which she said felt very much like early labour-pains. Commencing with this, a variety of symptoms followed of the most strange and unaccountable kind, gradually increasing in number and severity, the patient being overcome, at times, with a feeling of great oppression, and, at others, suffering torturing pains. She had tried various modes of treatment, and pursued them all to the fullest extent, with the vain hope of finding relief. One respectable physician informed her that her lungs were seriously affected; that she had only a portion, about the size of a dollar, left that was sound, and put her upon a course of medicine, what she does not know. Another told her she must *ride*, and she spent several dollars in patronising the Dry Dock stages, and many more in country jaunts. Another bled

her five times in as many days, "almost to death," as she expresses it. Another salivated her, presuming on the "*liver complaint*," but all to no purpose, as each method left her worse and more debilitated than it found her.

Several times during these four years, she has had amenorrhœa, which has lasted from three to eleven months, variably, and she is now free from the menstrual flux three months, without any other symptom of pregnancy. She had, to a very high degree, the peculiar symptom noticed in the preceding case, viz. tenderness of skin; this had been present in this case a very long time, and was now very acute, feeling like the exposed sub-cutaneous surface of a blister; all parts of the body except the extremities, presented this symptom, and when pressure, however slight, was made with the finger on any part, especially over a bone, the patient would cry out, and shrink away. Mrs. T. had, also, a hard, dry, hacking cough, which had troubled her for a long time, unaccompanied by any other symptom of bronchial inflammation. On account of the great tenderness of the skin, no pressure could be made on the abdomen to ascertain the condition of the viscera within, except occasionally, when this tenderness would be lessened, at which times, pressure would evince apparent severely acute inflammation beneath. She felt almost continually, deep-seated, obtuse pains in this and other regions. Another striking symptom noticed in this case, on one day particularly, was *drowsiness*, the patient having an uncontrollable desire to sleep all the day, falling into a slumber while conversing, her eyelids dropping without resistance. This was the more remarkable, as she possessed naturally great vivacity of disposition. Her appetite was not deficient, and her bowels were in good order. With all these distressing symptoms, I at no time, observed any particular increase in the frequency or force of the pulse, or other febrile appearance. Sometimes she would feel a fluttering of the heart, but no other circulatory affection.

I turned my attention soon after being called, to her spine, and immediately discerned the seat of the difficulty. The slightest pressure of the finger upon any part of the vertebral column, aggravated the symptoms in the corresponding parts in front; and when firmer pressure was made, the pains both in the back and

in front, as they darted around and through, became insupportable, and she would sink back exhausted.

I at once advised the application of cups to the spine freely; she very reluctantly yielded to this, fearing she would be unable from her debility, to endure the operation; a dozen, however, were applied, extending in a row, from the neck to the sacrum. On visiting her the day following, I found the operation had been well performed, and the patient was like another person, almost every symptom being greatly alleviated. The cough, however, was the same, and the cuticular tenderness only partially removed. The patient was more animated, and expressed herself much better, with hopes of recovery, which before, she had despaired of. But I was disappointed upon visiting her at the end of two or three days, to find the disorder almost as bad as at first. The application of a blister was then made, both over the lumbar and cervical vertebræ, though with much opposition from the patient. These had the desired effect, for on the morrow, I found her free from all pain, except that of the vesication, and only keeping her bed from the debility attendant upon the long illness she had gone through. Her cough had entirely gone; she could bear firm pressure anywhere without the slightest uneasiness; her drowsiness had entirely disappeared; and, in the course of a few days, when the blistered surfaces had healed, she was as well as ever, and better than she had been for four years.

The next case is one in which the transitory and evanescent nature occasionally assumed by this disease, is presented.

Case IV.—Mrs. G. C. seven months pregnant, sent for me, March 9th, 1836, in great haste: on arriving at the house, I found the patient well, and just recovered from a violent pain, resembling a cramp, in the region between the umbilicus and epigastrium. It had lasted about two hours, had come on suddenly, was very severe, and had left her suddenly a short time before I saw her. I prescribed nothing. On the following day, she sent for me again in the morning, complaining of urgent rheumatic pain in the knees, (particularly the left) and in the left shoulder, with sour stomach, and occasional nausea. I immediately

made pressure on the vertebræ. Commencing at the neck, strong pressure of the fingers was made upon each spinous process successively, as well as upon the sides of the vertebræ, but no pain was elicited and the bones were firm and unyielding to the force applied, until on arriving at about the sixth dorsal, the weight of the finger could scarcely be borne; great pain was produced, with nausea of stomach, the pain darting through the body and scapula when pressure was made, and the vertebra seemed to yield a little under the fingers. Immediately above, below, and at the sides of this vertebra, very little tenderness was produced by pressure. Proceeding downwards, no more pain was produced, until arriving at one of the lower lumbar vertebræ, the same phenomena were produced as above, except the nausea, and the pain darting through the hips. The patient had the choice of cups or blisters; she preferred the latter, and one four inches square was applied over each affected vertebra. They vesicated handsomely, the symptoms were all immediately removed, and did not recur.

The following presented the most alarming assemblage of symptoms that I remember to have seen in this disease, and presents a very instructive lesson respecting the circumspection necessary to arrive at a just conclusion in deciding upon the nature of a disease. It was evidently, as far as any appreciable cause could be discovered, an idiopathic case.

Case V.—Sudden access of the disease; great and rapid prostration, approaching collapse.—Mrs. G. L. was first seen Oct. 5th, 1838. She had risen in the morning after a good night's rest, without any disordered sensations, but when about getting breakfast, she complained suddenly of feeling sick, with nausea, slight vomiting of bilious matter, great tenderness of the abdomen, with slight flatulent tumefaction, soreness over all the trunk, but particularly severe pain in the epigastrium, continual, and much increased on pressure. The lower part of the spine bore the pressure of the fingers well, but as they advanced towards the upper dorsal vertebræ, tenderness began to be felt, and between the scapulæ, the touch of the fingers became insupportable. The slightest pressure sent tingling pains through the whole front of the body, aggravating to an intolerable degree

the agony of the abdomen. The pulse was upwards of 100, and very small, but soft; the tongue somewhat furred, but moist; the skin soft. The hands felt cold; and the patient complained at times of chilliness of the body, except the abdomen, which felt hot. Her face had assumed a blanched and somewhat cadaverous aspect; the eyes had sunken, and the nose become contracted. There was no action of the bowels; she could move with great difficulty in bed, and felt an astonishing degree of prostration. Such were the appearances presented on my first visit, about three hours after the sudden seizure.

The great tenderness of the spine, and the communication between it and the pain in front, were certainly strong reasons for supposing the disordered symptoms to be dependent upon this cause; and yet the vomiting of bilious matter, the extreme tenderness of abdomen increasing at intervals, the sunken countenance, the cold extremities, all made me hesitate in my decision whether the spinal cord was primarily affected, or whether its irritation was consecutive to derangement of the *primæ viæ*. The *suddenness of the attack* inclined me to the latter opinion, as it was difficult to reconcile my previous ideas of spinal irritation with the progress of the case before me, there being no cause whatever to which to attribute it; and it is well known that disordered stomach and bowels arise spontaneously, so far as the presence of any *known* cause is concerned. Thinking, therefore, that some ingesta might have produced these difficulties, I administered 10 grains of proto. chlor. hyd., to be followed in an hour by a scruple of ipec., with two grains of tart ant. Six hours after I saw her again, and found that the emetic had operated slightly, but without any good effect, as all the symptoms, except the nausea, had increased in severity, and the general appearance of the patient was decidedly worse. She lay upon the edge of the bed unable to move, the abdomen more distended and exceedingly painful; the countenance more cadaverous, and the pulse 140, and very small. The excessive pain in the abdomen suggested now the existence of peritonitis, though the absence of a corded state of the pulse, and heat of skin, were opposed to that. The tongue was now very dry and dark, the thirst great, the breath was cold, and the spine more and more tender.

I took from the arm about four ounces of scarlet blood ; the patient nearly fainted from this, though in a recumbent posture. A dozen leeches were applied to the abdomen, which bled freely. No beneficial result followed either of these operations, except that I thought the pulse became rather more free and full ; it was still 140. A consultation being now requested by me, we came to the conclusion, after a minute examination, that as some of the more prominent symptoms of peritonitis were absent, and there appeared to be much irregularity in the pains, the latter must be chiefly of a neuralgic character, and that counter irritation over the spine, with an opiate, would be the proper course. A blister was, therefore, placed over the dorsal vertebræ, a scruple of pul. Dov., and one grain of camph. administered, a slightly stimulating enema ordered, and she was left for the night, with directions for me to be called if any further prostration should occur before morning.

6th. Found the lady in about the same condition as last evening ; the blister had created considerable irritation, but no vesication. The powder had been partly rejected ; the tongue was very dark and dry, and a little sordes was seen upon the teeth ; the pulse was about 130. Prescribed liq. ammon. acet., with tinc. opii.

P. M. Has improved somewhat ; head feels a little heavy and dull, probably owing to the opium ; gave digitalis instead.

7th. This morning the patient is much improved. The blister has vesicated freely. Pains in the abdomen have diminished, but pulse is still very frequent. Bowels being constipated, ordered $\frac{3}{4}$ j. ol. ricini.

8th. Oil operated freely, and this morning Mrs. L. presents a very improved appearance ; her pains have materially diminished, but the pulse is 120. Tongue is moist, but still darkly coated.

9th. This morning I find rather a retrograde course in the disease. Much pain is felt in the head, with stupor, and uneasiness and soreness in the body generally. Examined the spine above and below the blister, and found it tender in nearly its whole extent, and the disorder in front, particularly in the head, aggravated by pressure upon it. Directed cups to be applied to the nape and loins. This application was soon followed with more substantial relief. The strength began to improve,

the pulse diminished in frequency, the pains subsided, the aspect of the countenance improved, and with the aid of mild remedies, and an occasional purgative, at the end of nine days from my first visit my patient was thoroughly convalescent.

The next case, simulating acute rheumatism, gives an instance, like case 4th, of the confinement of the primary irritation to a small part of the medulla.

Case VI. — Simulating acute Rheumatism. Cure. — Mrs. Gray of S—st, sent for me in September, 1836, complaining of a most intense and insupportable pain in the head, confined chiefly to the left side, involving the temple, eye, ear and occiput. It was felt, though in a less degree, and only occasionally, in the right side. The left eye felt as if it were bursting from the socket, and the distressed patient could not move the head without almost fainting with the agony. Being of a very delicate habit, and the pulse being very weak, I was deterred from V. S., which was first suggested to my mind. The pain very much resembled acute rheumatism, and was thought to be that by the patient, and soothing applications being indicated, I gave directions for an application of a warm hop poultice. But while this was in the course of preparation, the spinal nerves were suggested to my mind as, probably, being the cause of the difficulty, and I requested Mrs. G. to turn her head to one side, laid my finger on the cervical vertebræ, and immediately the starting and exclamation of the patient, revealed the source of all her trouble. The pain in the eyes, and in the whole head, was, if possible, aggravated, and this occurred as slight pressure was made upon each of the spinous processes, as far down as the fifth. Thus assured of the nature of the disorder, the remedial course was at once plain, and the application of half a dozen leeches to the nucha, gave such relief in half an hour that my patient slept for the first time in several days. On the following day very little pain remained. A blister was placed over the leech bites, which drew well, and gave still farther ease. In three or four days she was entirely well.

The following case shows the possibility of this affection oc-

curring in a youth of ten years of age, *simulating various affections, and of an obstinate character.*

Case VII.—Rowland R—— was first seen on the 3d of May, on account of a considerable febrile reaction, connected with pain in the epigastrium, increased on pressure, with the tongue thickly coated and very dirty white. He had been spiritless, and void of his usual activity, for a considerable time previous, as was represented. A sinapism was applied to the epigastrium, ten grains of calomel administered, followed by an aperient, and in two or three days he was essentially relieved. About a week after, however, he was confined again to his bed by an attack of rheumatic pain in the right knee and foot, which obliged him to keep the limb in one position, though it made it ache worse; he could not bear it to be moved. His tongue was also foul, and his complexion slightly icterode. Upon touching the lower vertebræ rather forcibly, an increase was given to the pain in the knee and foot, and a good deal of pain was felt in the vertebræ, which was not before noticed there. Nine leeches were applied over this part, which were followed by almost immediate relief of the extremities. Some remains of the pain were felt the next day, which a blister entirely removed.

A few days elapsed, during which the patient remained under treatment for the remaining hepatic and gastric disorder, when a good deal of pain was felt in the regions of the stomach, liver and spleen, upon which he could not bear to be pressed. He could not turn himself in bed, and whenever he attempted to lie down he would almost invariably spring up again suddenly, and cry out as with a severe pleuritic pain. This was felt also upon making a full inspiration. All these symptoms, combined with the burning heat of his hands, his restlessness, and sickly appearance, gave a great deal of anxiety to his excellent family, and it was with much difficulty that I could prevail upon the parents that my view of the case was a proper one, and that their son was not so sick as they supposed. I had examined the spine, and there detected the seat of the disorder, and upon my expressing my willingness to stake my reputation for accuracy of judgment upon the issue, (a thing, by the way, which I seldom or never do, even in the plainest cases,) they consented to the application of a row of cups from the neck downwards to

the edge of the blister before applied. The application was made in the P. M., and, according to promise, in the evening no other pain was felt but the soreness of the incisions. He could turn without difficulty, and lie in any position, and slept quite soundly in the night.

July 7th. Soon after completing my last visits, my young patient became troubled with headache to a severe degree, which continued incessantly. This commenced about a week after the cupping; and in a few days after this he was seized with torticollis, together with sore throat. These were presumed to be caused by an ordinary cold, and were treated with the ordinary applications, but no relief followed. Presuming at length that these symptoms might be the remains of the old affection, with a change of locality, I made pressure upon the cervical vertebræ, and immediately all the pains were aggravated, even the soreness of the throat. (I should have observed that no redness of the fauces sufficient to account for the soreness, could be seen.) The application of the antimonial ointment was now urged, principally because the patient objected to any further use of blisters, cups or leeches, which latter I should have preferred.

The ointment produced a copious crop of pustules, which brought considerable alleviation to the pains, but not so much as I had anticipated. After pursuing this course two or three weeks, and a fair trial had been given to it, recourse was had, under the direction of a consultation, to the repeated application of leeches to the cervical vertebræ. Half a dozen were applied every three or five days for a fortnight. He then being somewhat improved, went into the country, where, under the advice of a physician, blisters were applied alternately to the nape and arms, in rapid succession. This was continued a week or two, and the patient gradually improved, so that at the latter end of September very little of the distortion remained; and his general health was very greatly benefited.

DIAGNOSIS. — Doubtless this more modern seat and source of disease is well understood by almost every intelligent practitioner, and one who has the welfare of his patients honestly at heart, and does not deem it a trouble to probe every possible quarter for information, will often discover the spine to be the unexpected location of disorder. Many a physician has probably met with a case similar to

the first cases here recorded, in which the diagnosis is very plain; in which the spine would be the first thing to attract the attention in looking for a source for the symptoms. Such cases, I repeat, are very simple: and with them the acute physician loses no time either in his diagnosis, or his proper applications for relief.

But there are disorders, and the number is by no means inconsiderable, of an apparently well defined and decided character, in which an implication of the spine would not be suspected in the most remote degree, and yet which may be found upon inspection to have an important and decisive influence over the symptoms as they exist. As has been already said, the symptoms of spinal irritation bear so remarkable a similitude to various local diseases, of an inflammatory or other character, it may be deemed not improper to recommend in purely medical cases, as a universal rule, to ascertain as far as practicable the condition of the spine. Nothing is more common or more proper for a judicious practitioner, in whatever disease, to inquire of his patient the condition of his abdomen, of his chest, or of his head, and indeed of all of these; and this information is sought even where there is no direct reason to suspect either to be particularly involved in the train of disease. We all know well that a deranged condition of these parts may exist without any positive indication thereof being given; and the apprehension that such may exist is the inducement for the practitioner to push his inquiries to the utmost limit of investigation. How often do we find upon inquiry, the brain to be affected in instances of pure disorder of the primæ viæ, and which, *a priori*, would not have been suspected; and where an application to the head, though perhaps having no direct effect upon the original seat of disease, gives material relief to the patient. A dull pain in the cerebral organ, or a partial obscuration of the intellect, or of the senses, of which the sick person himself would have no suspicion, its access having been very gradual and no acute sensation being felt, is often brought to the knowledge both of patient and physician, by the well directed inquiries of the latter. This case is too common to require illustration. Then bearing in mind, the prominent peculiarity of spinal irritation, that its effects are felt in parts at a distance from their origin, and seldom, *if ever*, in the part affected; and also that the spinal cord

has as close a connection with, and influence over, most of the organs of the body, as has the brain ; that its structure and functions are in many respects identical with those of the latter organ ; that it is liable to many of the same diseases, and as obnoxious to sympathetic irritations, have we not irresistible reasons for asserting the insufficiency of a report which omits all notice of the spine ? and can any one, in *any* case, be satisfied with his diagnosis, without a thorough examination of it ?

Again, if this position is true, or even only plausible, with respect to adult patients ; if we are bound carefully to pursue this course with those who may be able to communicate orally all they feel, but who would never suspect the spinal cord to be the source of many of their disordered sensations, the obligation comes upon us with increased force when treating those of more tender years, and especially infants, with whom a diagnosis is very often so particularly difficult and uncertain. The following case is a very clear example of this.

Case VIII. — Spinal Irritation occurring in an Infant. — Efficacy of Croton Oil as a counter-irritant. — The infant child of Jno. H. was observed, when a few weeks old, to be afflicted with some disorder which caused it to keep up a long continued and violent screaming, accompanied with great restlessness, wakefulness, and other symptoms of severe suffering. No apparent cause could, at the general view, be discovered to account for a difficulty so great, as the child had always been hearty and good conditioned, and nothing but its natural food could have passed into its stomach. The spine upon examination appeared to be the seat of the difficulty, as the slightest touch of the finger seemed to increase the restlessness and screaming.

Two or three drops of Croton oil were rubbed upon the back, along the spinal column — a copious crop of pustules was produced, and very soon relief, permanent relief, was given to the little patient.

A case reported in the *Edinburgh Medical and Surgical Journal* for January, 1833, is so remarkable and so much to the point that I cannot avoid extracting it.

Case IX. — Patient, an infant ; convulsions and other se-

vere symptoms. Cure by counter-irritation ; inefficacy of other treatment. — A child, aged four months, and apparently healthy, was attacked with more frequent fits of crying than usual, particularly at night. At the expiration of a week, with the fits of crying, there was an evident sense of suffocation for a moment, but as soon as the child cried freely, this affection disappeared. At the end of two months, respiration was now not only further impeded for six or eight seconds, but attended with a squeaking or stridulous noise, which resembled sometimes the crowing of a cock, and which always terminated by crying. For several weeks little alteration was apparent, till at length a new symptom supervened, in the form of a convulsive affection of the hands ; the thumb was drawn into the palm of the hand, whilst the fingers were stiff and extended, or rather reflected, or thrown somewhat backward. Convulsions of a general character soon followed, which occurred, for a month, once a week, afterwards came once a day, and soon after, twice a day for three months. These (the general convulsions) were preceded by the above symptoms, which terminated by a strong expiration and crying for a few moments, but instantly after the child stared as if frightened at something ; the pupils became dilated, and in a few moments the eyeballs became somewhat distorted and fixed ; the head and shoulders thrown back ; the face purplish or blue ; the whole body stiff, and on the stretch, and respiration suspended. But in a short time the spasm abated ; the face became pale ; there was moaning for a while, and afterwards sleep. During the whole of this time, emetics, calomel, anti-spasmodics, &c. were given with little or no good effect. The circumstances of the child not using his legs as much as was expected, at length led to an examination of the spine, and on pressing the third or fourth dorsal vertebra there was always cringing and crying ; there was neither deformity nor discolouration of the skin. Four leeches were applied. This acted like a charm ; no return, except a slight one, a few hours after the application of the leeches. In two days the leeches were repeated. The child has passed through teething, and is now eighteen months old, without any return.

The importance of early ascertaining the origin of spasmodic diseases in children, which may have their cause in irritation of

the spinal cord, can scarcely be overrated, when we recollect that spasmodic affections, at first trifling, may terminate in confirmed epilepsy; and that in many cases of confirmed epilepsy, the only morbid changes observable after death, are ossifications, or cartilaginous, or tuberculous depositions in the cord or its membranes, and the origin of which was, in the first instance, only irritation.

It may, perhaps, serve to throw a little light upon, and to awaken still farther the attention of practitioners to this subject, to give a glance at the disorders which, according to the observations of others beside myself, are simulated by spinal irritation: remarking beforehand that these symptoms, in each case, have very often been treated, for a greater or less length of time, as those of the simulated disease, without an implication of the spinal cord being suspected until the inutility of the treatment has been fairly proved, and the adoption of a different view of the case and course of treatment has been rendered necessary.

1. *Rheumatism*, acute, and chronic. This, I think, may be set down as the most common of the specific diseases depending upon an irritation of the spinal nerves. It has been noticed by various, and indeed by almost all, writers upon the subject. There are many cases of rheumatism, in which no trace of any spinal derangement can be detected, but as so many have occurred, it is but reasonable to suppose that others will.

Next to this may be set down *neuralgia* both local and general. Numerous cases are on record, wherein neuralgic pains of various parts of the body, many at the most remote distance from the spine, have been immediately and permanently relieved by a counter-irritant application over the spine at the origin of the nerves supplying the part affected, and this too, after repeated applications of irritants and sedatives to the part itself, have proved valueless.

2. Next in the order of frequency come *inflammations of various organs*, which sometimes assume a serous and sometimes a mucous character, according to its locality. The most frequent simulation under this head perhaps is peritonitis, and the deception is rendered in this instance more complete to the incautious observer, by the exquisite sensibility of the abdominal integuments, before noticed. As in the more severe instances of this dangerous phlegmasia, the surface of the body will not bear the

slightest touch of the finger, while the patient complains of a continual pain in the part; lies with the knees and hips flexed; the skin hot, the pulse small and perhaps even corded. But a careful scrutiny will dissipate the fears, which the case at first blush may have excited; and nothing can be, in therapeutics, more certain than the complete cure of *this* form of peritonitis. Similar remarks are applicable to apparent inflammations of the stomach, intestines, and even of the liver and pleura. I have seen instances of apparent pleuritis as clearly diagnosed by the most prominent characteristics as I have ever observed in the genuine phlegmasia, which a spinal examination has proved to be of nervous character, and which view the treatment has confirmed; thus saving the patient from a painful and worse than useless depletion, which a less careful inquiry would have deemed proper. Bronchitis likewise, is not an unfrequent simulation. I have already related an instance in which the spinal irritation evinced itself by a troublesome cough, and others I might give, were it deemed proper to eke out these pages with the recital of cases. But the confirmatory testimony of other practitioners is sufficiently abundant to render this unnecessary. The cough is not always void of expectoration, but sometimes is accompanied with a copious discharge of mucus or froth, and these, together with the deep seated and depressing pains in various parts of the chest, the tickling in the throat, accompanied as they occasionally are with emaciation and diurnal febrile reaction, must of course excite the liveliest apprehension for the safety of the patient, but which an examination of the spine, simple and easy as it is, may dissipate in the sunshine of joy.

Case X.—A striking case of this kind is related by Dr. Parrish, as communicated to him by Dr. Jackson.

The patient, a young lady of delicate constitution, and nervous temperament, had been troubled for a year with a dry hacking cough, with dyspeptic and nervous symptoms. She was much emaciated, and supposed by her friends to be in a confirmed consumption. No organic disease of the lungs could be discovered; but the symptoms becoming still more alarming, and unable to discover the cause, the Dr. "in the course of a *few weeks*," was induced to examine the spine, where the whole cause of the

distressing symptoms was found to be located; the remedial applications made to this spot, in a few weeks produced a perfect restoration to health.

I may add that in genuine phthisis, the spine will often be found tender on pressure, and there is no doubt that many of the painful symptoms accompanying this disease are dependent solely upon medullary irritation, and relievable by counter-irritant applications to the back. Very few of the cases which I have seen have been unaccompanied by it; and it would be surprising, if in a disorder in which the secreting action of so extensive and important a surface as the pulmonary membranes is so much deranged and diseased, that one of the great nervous centres which control the operations of this function should not be itself disordered, and some degree of irritation produced in it.

A reciprocal disordered action is probably carried on between the functions of these two important organs. The pulmonary tissue may be the original seat of disease, and the spinal medulla be secondarily affected, many of the painful symptoms being dependent upon the secondary disorder. Or, as in Dr. Jackson's case, the spine may be the primary seat of disease, and the pulmonary symptoms consequent upon it. The latter, of course, presents the more favourable pathological aspect.

Laryngitis too, is often very accurately simulated. An instructive case is given by Dr. Corrigan, in which the symptoms were so decided, that he at once pronounced it a case of acute laryngitis, but observing in his examination that the patient had lost sensation of the skin below the epigastrium, his attention was directed to the cervical spine, where he found the cause of all the bad symptoms, and a rapid recovery was the result.

One would suppose that no disease could be more distinguishable by its physical signs, than *ophthalmia*, the true inflammation of the eye, and that the proper treatment, by cups, leeches, and blisters to the temple, and topical applications to the organ itself, would be indisputable; and yet we have well authenticated cases wherein this disease, well marked in most of its peculiar characters, after having resisted all the usual curative means, has been found dependent upon irritation of the cervical portion of the cord, and has been dissipated by one or two blisters over that part.

Passing by affections of an inflammatory nature, with these

brief remarks, we shall find the next most frequent series of complaints to be of a *functional* character. Every physician meets with instances of symptoms in various organs, of functional disorder, which he is unable to trace to any organic derangement of the viscus which appears to be affected, and sometimes he finds a single symptom, entirely isolated, which renders the patient miserable in body, and the physician almost equally so in mind, for he can neither trace it to a cause, nor find a remedy for it. There is scarcely an organ in the body whose functional operations are not sometimes disturbed in a greater or less degree, and that without the least degree of organic disease, and dependent wholly upon some derangement of the supplying nerves at their origin. Connected with the *stomach*, we find nausea, and sometimes vomiting, foul breath, loss of appetite, or morbid appetite, impaired digestion, apparently confirmed dyspepsia, various degrees of oppression or pain, acid and other eructations, and, in fact, every kind of derangement of which the complicated process of gastric digestion may be susceptible from other causes.

In the *intestines* we meet with constipation, colic, flatulence, borborygmi, and many other evils to which these parts are liable, all traceable to a tender spot in the spinal column. Renal and vesicular disorders are frequently noted as ascribable to the same cause, and remediable by the same means, without the aid of internal medicines.*

Of functional disorders of the internal organs, there are none more frequently met with perhaps, than those of the *centre of the circulation*. Cases upon cases are recorded of disorders of the

* A writer in the American Journal of Medical Sciences, maintains that the primary cause of *vesicular calculi* may be ultimately traced to disease or injuries of the nervous system, quoting Wilson Philip, that in all cases of spinal irritation the kidneys secrete an abundance of sabulous matter. The writer adds: "In tracing the history of calculous diseases, you will be informed that the existence of the disease is preceded by pain along the course of the spine. We are aware that this symptom has been attributed to irritation of gravel in the kidneys, but we positively know that spinal irritation is accompanied by pain in the back, neuralgic pains shooting down the thighs, and that this disease will cause an abundant secretion of calculous matter; why not then refer the pain to the same rational source?" Vol. xx. pp. 163 and 164.

Dr. John Marshall relates a well marked case of diabetes, which after long resisting other treatment, yielded to counter irritation over the spine, and by which the secretion was changed from saccharine to saline.

heart, attended with severe palpitations, anormal sounds, &c. which continue for a long period, and being supposed dependent upon organic derangement, are treated with the remedies usual in such a condition of the organ, but which defy them all, and which, indeed, grow worse oftentimes under their administration, are then discovered to be of medullary origin, and yield readily to the proper applications. The symptoms of disease in this organ sometimes assume very curious features. The palpitations are generally of short duration, though they may be of frequent occurrence. Sometimes, after beating furiously for a few minutes, a change of position will cause the heart to be perfectly quiet, and the paroxysm will be over, and, perhaps, not be renewed for several days or weeks.

Case XI.—Probable irritation of the ganglionic nerves.—I have been sent for several times by a lady, in great haste and trepidation, on account of a violent action of the heart, exciting apprehensions for her life, which would seize her in the midst of the quiet performance of her domestic duties. I have found her, although arriving in a few minutes, lying flat on her back, and perfectly easy, the palpitations having ceased almost immediately after assuming that position. I have never had, in consequence of the short duration of the paroxysm in this case, an opportunity of auscultating the heart during the paroxysm, but am satisfied, from the attendant circumstances, that the disorder was of purely nervous character and origin, and, probably, owing to some irritation of the spinal medulla, or, perhaps, of the ganglionic nerves.

Of other disorders affecting the respiratory or circulating apparatus, *asthma* and *angina pectoris*, especially, are unquestionably often dependent upon an irritated condition of the spinal nerves. That the former of these is owing in many, perhaps in most instances, to organic derangement, cannot safely be questioned; but it would be equally unwise, in the face of the numerous recorded cases, to doubt that it may be a purely functional disorder, having its primary seat in the supplying nerves, or the medulla itself. This being admitted, the reason of the failure in numerous examples of the diverse remedies applicable to the true

asthma will be perceived; for although the respiratory function is the seat of its exhibition, the true disease lies in a distant organ, and to the latter the curative measures must be directed. Similar remarks are applicable to *angina pectoris*.

Of disorders of the muscular system, the most marked, attributable to whatever cause, is *Chorea St. Viti*. This is one among many other diseases whose pathology has always divided the sentiment of the profession. No one theory has probably, united a greater number of minds upon this subject than that of Dr. Hamilton of Edinburgh. And yet those who have had much experience in its treatment, must acknowledge his ultraism in attributing every case to a disordered or overloaded state of the *primæ viæ*. That this is a fruitful primary cause of this disease may be true, but even then it will be difficult, if not utterly impossible, to trace the connection of the cause and the effect, so remote from each other, unless through the highroad of the ganglionic and spinal systems of nerves. Admitting, therefore, the cause of this disorder, occasionally to be that assigned by Dr. Hamilton, we must still believe the ultimate affection to be produced by an irritation of the nervous system, and this secondary cause may continue in operation after the first has been entirely removed; and then where is the cure? evidently in remedies addressed to the nervous system.

Sometimes the disease is undoubtedly dependent upon uterine irritation, and in this case the same chain of morbid associations must exist as in the former case, the first link only being altered. I will relate but one case upon this subject, but in it the associations appear very clear.

Case XII.—St. Vitus's dance from spinal irritation; amenorrhæa; cured by counter irritation and tonics. — On the 22d March, 1837, I was called to see Hannah T. aged nearly 14 years. I found a strongly marked case of St. Vitus's dance, the whole body being affected with it, even the muscles of the mouth and other parts of the face. She had been labouring under it about six weeks, and it commenced with a loss of power in the lower extremities. She complained of much pain in the epigastrium and abdomen. She has never menstruated, although her mother did at 12 years of age. I found the spine very tender, and the pres-

sure on it gave considerable pain in the abdomen. Some pain also was given to the head by pressure upon the cervical vertebræ. She was cupped along the whole course of the spine with a great deal of benefit. A day or two afterwards I administered a strong dose of sub. mur. hyd. and pulv. jalap, which operated powerfully. Soon after she was put on the use of præcip. carb. ferri. a scruple "ter in die," which she took after a few days, four times a day, in wine.

April 8th. From being entirely helpless, I find Hannah able now to dress herself, help herself at table, sweep the floor, and she sits very still for a great many minutes without *any motion*. When I first saw her she kept up an incessant motion of all parts, and was not quiet even in her sleep. Now she sleeps almost all night perfectly still. She could not at first keep her tongue still when put out of her mouth, but now she can command it completely. In addition to the carb. iron, I have used over the spine a liniment of turpentine, ammonia, and tinc. cantharides.

September. The result of this case is a complete recovery. The catamenia which had appeared but once, have lately commenced and proceed regularly, and her health is in all respects improved.

Another affection of the muscular system, involuntary spasmodic contractions of individual muscles, commonly denominated *cramp*, is likewise often directly dependent upon irritation of the supplying nerves, and it may, without much fear of contradiction, be asserted to be always connected with it, in whatever manner the latter may have been produced. In diseases of the intestinal canal, probably the most frequent source of cramps, the only mode in which the muscular system can be supposed to be reached, is by the irritation being reflected through the spinal cord. In such cases the spinal medulla is merely the vehicle of the diseased impression, and no permanent influence being produced upon this organ, the cramp, which is a secondary effect, ceases with the removal of the primary cause, without the necessity of any application to the medulla. But the case is a different one when the cord is the original location of the exciting cause, or when the transmitted irritation is so severe or of such a character, as permanently to impress it with the disordered action. Then the effect of the diseased action will remain after the

original influence is subdued. As examples of the latter action may be cited, tetanus and hydrophobia, which though both diseases doubtless of a spinal nature, yet are probably dependent upon a more extensive and profound disorganization of the cord than that now under consideration.

Other convulsive affections are often directly traceable to the same origin. That *hysteria* very frequently depends upon spinal irritation cannot be doubted, from the numerous well attested cases to be found in the journals; and I do not hesitate to express the belief that practitioners would very often find their advantage in addressing their applications for the relief of hysteria, and other convulsive affections, more directly to the spine, than has hitherto been the case. Puerperal convulsions, very probably, will be found more tractable to such treatment, if sufficiently energetic, than is usually the case with the more common mode.

Other local muscular disorders, such as defects of swallowing, of speech, &c., may occasionally be traced to a tender portion of the medulla.

Besides the specific diseases here enumerated, as simulated by spinal irritation, there will often be found many particular symptoms associated with other diseases, which seem to have no especial or direct connection with those diseases, yet whose presence forms a very important part of the general features of the case, and depend upon the same cause. For example, in many protracted fevers of almost every type, we frequently observe a complication of local pains in various parts of the body, which generally form the most distressing part of the patient's sufferings, and from which he seems most anxious to be released, but which applications to the part affected seem incapable of relieving. Two plain cases of this kind I will relate.

Case XIII. — Spinal Irritation, complicated with general pyrexia; the latter relieved by removal of the former. — Jonathan Kelly, an apprentice to a painter, was first seen May 25th. He had much fever, with very foul tongue, great debility, hot and dry skin, considerable pain in the gastric and umbilical regions, and throughout the abdomen generally. The attack was attributed to a fall which he had of about three yards, alight-

ing on his feet, and giving his whole frame a severe concussion. The ordinary febrifuge remedies were administered, and a rube-facient of mustard directed over the abdomen. The purgatives, diaphoretics, &c. operated well, but the pain continued undiminished, and the debility rapidly increased. Curiosity, at the end of two or three days, led me to examine the spine, and the first touch about opposite the umbilicus, elicited the seat of the difficulty, and as the fingers were carried above and below, and the pressure continued, the young man's sufferings were very much aggravated. The affected portion of the spine terminated above about the middle of the dorsum, and below at the middle of the lumbar region. His debility and exhaustion were so great that his friends deemed it hazardous to resort to so severe an operation as cupping, and I thought he might hardly be able to bear it; but confident in my diagnosis, I insisted upon it, and the result answered my most sanguine anticipations. The tongue still continued thickly coated with dirty white, which a strong emetic had only partially removed. One dozen cups were applied, six on each side of the spine in the affected district, and "mirabile dictu," not only did the pain rapidly subside, so as to leave him almost free, but before the operation was half completed, his exhaustion began to disappear, and at the end of it he had none, and felt quite strong. He rapidly recovered from that time.

Case XIV.—Samuel Green, aged 15, was attacked apparently with continued fever, without any particular local affection. The tongue was found very dark, and thickly coated, and very dry; he had pains in the abdominal region, stomach, and lower extremities, and very severe pains, in the whole head and back; intolerance of light, great thirst, &c. Diaphoretics and mercurial purgatives were given with partial relief. The pains not diminishing, I examined the spine, and found it tender in nearly its whole course. Cups were freely applied from the upper dorsal region downward. His debility was very great, and constantly increasing, but believing it to be caused by an irritation of the spinal nerves, I persevered with the cups, and relief was very soon obtained, except in the head. His tongue improved but little, and his sight none. Upon touching the cervical

vertebræ a day or two afterwards, the pains in the head were very much increased. Blisters applied to the nape were very efficient in allaying these, and the intolerance of light was entirely removed. All his pains rapidly disappeared, but his convalescence from the other febrile symptoms was tardy. In this case the irritation was caused by his going frequently into the river to bathe while overheated.

This point is a matter of no little importance in the treatment of continued fevers, and has been remarked upon by several writers. Some have gone so far as to assert the intermittent form of fevers to be dependent upon spinal irritation, and strongly urge the necessity of counter irritation over the column as an adjunct in their treatment. It is not at all unreasonable to suppose the nervous system to be the particular agent in the production of those peculiarities in the appearances of some fevers, but I would more readily suspect the ganglionic portion of this system to be principally concerned in these mysterious operations, though the probability is, that it and the cerebro-spinal system share the influence. J. F. Lobstein conjectures the paroxysmal form of fever to be owing to a perverted action of the abdominal system, producing a diseased impression upon the solar and other plexuses, whereby the harmony of their functions is interrupted; but he does not appear to place any of the onus of causation upon the spinal medulla. Letting these conjectures pass for what they are worth, there can be no reason to doubt the utility of counter irritation over the track of the spine in some instances of fever, whether intermittent, remittent, or continued.

Dr. Enz of Wurtemberg, among many others, appears to have paid considerable attention to this form of disease, and relates many cases in which the application of this theory has been of great utility in their treatment. His notion of the influence of this disease extends much further than I have been accustomed to consider it applicable. In his view, hæmorrhages constitute another form of disease frequently dependent upon spinal irritation, and gives to this the credit of causing epistaxis, hæmatemesis, hæmoptysis, and especially menorrhagia. "Often," he says—I quote from a notice of his work in the *Med. Chir. Rev.*—"have I been summoned to consultation in obstinate cases of

such hæmorrhages where all means of relief failed, until once the real cause of the disease was discovered by a careful examination of the spine."

He asserts that dysmenorrhæa, among other affections of the circulating system, with all its accompanying chlorotic and hysterical symptoms, has very often its origin in some spinal affection. If there is any one disease which more than others should call into energy the studious reflection and ingenuity of the medical practitioner to devise means for its relief, it is that which, affecting alone the fairest portion of our race, brings into severest exercise the sympathies of our hearts, while it too often to them, renders life a miserable burden. This alone should induce us to repudiate all incredulity in the views of another, when he may appear extravagant or fanciful in his theories; but when we recollect how unsatisfactory and inefficient has the treatment of this disease hitherto been, it is especially demanded of us that the faintest shadow of hope should be embraced, when so very desirable an object as the diminution of these terrible sufferings is the end sought. I do not wish it to be inferred from this, that I consider the suggestion of Dr. Enz with regard to dysmenorrhæa as either fanciful or extravagant, for so surprised have I often been by my own observations, and by the recital of cases by others, of the influence of this spinal affection, that I do not think his view at all improbable, and believe it worthy of the serious attention of physicians.

In the formidable list of diseases which is here presented as simulated by this affection of the spinal nerves, and the accuracy of which pathological view is well proven by the innumerable observations of a crowd of pathologists, we certainly have abundant warning to be continually on our guard against an error in our diagnosis at the bedside, which may serve not only to prolong the sufferings of our patients, but likewise jeopardize our reputations, especially when a decision may be so easily obtained respecting the existence of this disease, in most cases. It must not be forgotten that it is very rarely apparent at first sight; that it is concealed by other diseased appearances, which are very likely to completely draw attention away from it; and that having few diagnostic signs, it can only be discovered by actual examination of the spine. Even tenderness on pressure is sometimes ab-

sent, when, our treatment for other affections having failed, we have reason to suspect the spinal axis to be involved in the morbid changes.

But I have not, by any means, enumerated all the diseases which may be simulated by spinal irritation; indeed we doubt, whether, from the interminable varieties which most diseases assume from various causes, as climate, temperament, &c. it could be done; but as has been well remarked by Hinterberger, there is scarcely one malady whose mask it may not wear, and he has adroitly denominated this department of pathology the *cryptogamic*. This may be truly called the Protean malady; and the absolute necessity of ascertaining whether it does exist or not, cannot be denied, however confident we may be of another diagnosis, without such knowledge. I have lately endeavoured to ascertain how far, in my own practice, this disorder has been influential in producing all, or a part of the symptoms observed. The observations which I have made on this point, embrace but a short period of time, as, not having made any record of the ordinary cases of disease in which it has had but a partial influence, the memory is an insufficient foundation for a tabular arrangement. The period from which I have drawn my conclusions, presents this result: in all the cases which I treated, medical, surgical, obstetric or other, spinal irritation was influential in about 25 per cent. in producing some of the disordered appearances, and counter irritation over the spine aided materially in relieving the symptoms. This includes those cases whose symptoms depended entirely upon spinal irritation.*

PATHOLOGY.—We come now to the inquiry into the pathological condition of the spinal cord and nerves, in this state of "Irritation." In looking over the history of this part of our subject, we find that although but few writers have appeared upon it, yet they have taken views of it widely different from each other, and much diversity of opinion still prevails respecting it. The inquiry has, however, of later date, been narrowed down to a smaller compass, and seems to embrace at present only this question:—Is the pathological condition of these parts in this

* A *coup d'oeil* of my practice since the reading of this paper, gives, as near as may be, the same proportion of influence to this disease. I am satisfied it is much more common than is generally supposed.

diseased condition, a true inflammation or not? If this point shall become satisfactorily settled in the negative, we shall not, however, have arrived at the conclusion of the pathological inquiry; for the question then will be:—If it is not an inflammation, what is it? There are two reasons why, to many persons, time and thought spent in this inquiry, would seem to be thrown away, or wasted in useless theorizing. In the first place, it might be maintained, that the question never can be satisfactorily settled; because we have not had, and may never have, an opportunity of resorting to the final and decisive test of such a subject—autopsia. And secondly, we may be told, that even should the inquiry be settled to the satisfaction of all parties, and the true pathology of the disease be clearly ascertained, it would lead to no practical good, for the *modus medendi* is so well understood, and our means of treating all degrees and stages of it, are so ample, and well known, that no very useful addition, it is at all likely, can be made to the list of curatives. To the general objection contained in these two sentences, against the practice of theorizing, it may be answered, that the endeavour to form a good and consistent theory in medicine, is only another mode of expressing the attempt to ascertain the most correct *principles* of a disease, in other words its true pathology; and as a *sequiter*, the most efficient means for its prevention and cure.

To say that we have attained to the high point of perfection in the cure, is to admit a very dangerous principle, with regard to any disease whatever, especially one which at a date comparatively so recent, has received the attention of the medical world, as “Spinal Irritation.” He should be deemed an inefficient and dangerous physician, who will allow his indolent conscience to be consoled with the reflection, that all is known that can be known, in any department of medicine.

But to the first question, whether this state of irritation is an inflammation of the medulla, or of its nerves, or not?

Different authors, as I have already hinted, maintain different opinions on this subject, and support them by divers arguments. Among those on the affirmative of this question, may be named Teale; who, though he does not enter profoundly into the discussion of the question, maintains that it is an *inflammation* of the nervous tissue. He admits that the precise nature of the af-

fection must remain conjectural to a certain degree ; but observes, "the collateral evidence however, is of such a nature, as to leave but little doubt of the disease being inflammatory." He indeed uses the term irritation in the same sense as the continental writers, "regarding irritation and inflammation as morbid states, differing only in degree, and exhibiting no distinct line of demarcation." His first argument is founded upon a supposed similarity between the symptoms of the *commencement* of the more severe diseases of the spinal cord, and the signs of these milder forms of disease ; and he says, "every gradation of symptoms may be observed, from those which denote the mildest irritation of the spinal marrow, to those which attend its complete disorganization." Hence he infers they are but lighter shades of the same disease, inflammation.

This can at best be considered but a negative proof of the correctness of his position. It is not enough to say that a similarity of symptoms indicates a similar disease ; for every practitioner knows, that very different diseases, in many cases, are not distinguishable by different signs from each other. Our text-books contain many examples of this kind. I need only mention the instance of phthisis, to show the discrepancy of the signs by which a disease may be unequivocally known.

But to examine this point we must go further, and call to mind the true, the well known, and established symptoms of *inflammation*, and also its results ; and compare them with the evidences of disease in spinal irritation. Increased heat and redness, and pain with tumefaction of the affected part, are the indications of true inflammation, varying in intensity corresponding with the degree of the disorder. These are the general characteristics of inflammation ; and I presume it will be conceded by all, that no specific inflammatory action can exist in any tissue whatever, unaccompanied with these, or most of these marks. Now I do not see that we have in the disorder under consideration, any testimony by which it can be shown, that either or any of these characters exist *in the part* which we believe is diseased. Moreover, whenever an inflammation occurs in any organ beyond the reach of manipulation, and we are unable positively to prove that any of these signs exist, we become assured within a reasonable time, that a true inflamma-

tion has been at work with its insidious fangs, by its *results*; chiefly an alteration in the structure of the affected part, or by autopsical examination, as in inflammations of the lungs, liver, intestines, and even of the brain itself. I wish now to show that by neither of these two methods, i. e. either by observing the symptoms as they exist during the disease, or by its results, can we be justified in calling this anormal condition, an inflammation.

In the first place, I have never discovered either that the integuments covering the spine give any sensation of increased temperature to the hand, or that any is felt by the patient in the part; nor have I seen it noticed by any writer. It may be said to this that the affected tissue is too remote from the surface to allow the increased temperature to be perceived. But how do we find the case to stand in inflammations of other parts which are situated equally far beneath the surface? Witness, for example, inflammatory affections of the internal structure of the knee, and other joints; is not the sensation of elevated temperature in the integuments, a universally expected symptom here? And in inflammation of the brain, or its meninges, does not the scalp invariably give to the hand an increased calorific sensation? If in inflammation of these deeply seated parts, we expect to find this symptom, we should equally expect it in a true inflammation of the spinal cord.

Secondly, no redness, of course, can be observed in the affected tissue, as it lies much below the surface. Respecting the remaining characteristics of inflammation, the pain and swelling, it is generally supposed that the former depends upon the latter. The swelling is caused by the increased flow of blood to the part, together with a deposition of extraneous fluid or solid matter; and these exerting a mechanical compression upon the nervous extremities, give rise to the pain in ordinary cases of inflammation of the nervous or any other tissue. There is a *possibility* that these circumstances may happen in spinal irritation; but we have no facts to warrant the conclusion, especially when we bear in mind that pain of the most intense kind and of various character depends very often, as all have seen, upon some purely nervous affection, where the supposition of inflammation cannot be admitted.

Case XV.—Severe and extensive irritation of the nervous system, without pyrexia.—The case of Mrs. G——, (formerly related to the society) is an illustration of this ; in which pain of the most excruciating character commenced immediately after parturition in the vicinity of the coccyx, and thence spread itself to different parts of the body, until almost every portion of it was involved in the general distress, having continued till this time, with occasional intervals, a period of three years. These pains assumed the severest forms of neuralgia, and when at their highest point of intensity, and embracing at once almost every section of the body, were often unaccompanied by any febrile reaction, although this did frequently obtain during the progress of the disease. In this case it would seem as if a revulsion of some kind, inscrutable to us, took place in the nervous organism, following immediately in the train of, and perhaps produced by, the change in the uterine system.

I wish it to be deduced from this, that pain is not always the consequence of inflammation and tumefaction.

Again, in almost every case of disease which has a true inflammation for its proximate cause, the pain is felt in the seat of the inflammation. I do not forget the axiom so well established, that the disorder of the *root* is often felt only at the *sentient extremity* of the nerve, as is the case in this very disease ; but I maintain, that when an inflammation of a nerve, or its neurileme occurs, the pain is not so likely to be felt in the extremity of *that* nerve, as of the nervous twigs which supply the part, or the neighbourhood of it, that is immediately the seat of the disorder. In other words, the pain of an inflamed nerve, or neurileme, is experienced at the diseased point.

Again, as to the accompaniments of inflammation affecting the different tissues of the body. May it not be incontrovertibly asserted, that when an inflammation attacks any part of the body, however insignificant in its vital relations, a greater or less degree of constitutional disturbance, as fever, invariably follows in its train. (I should here except that state of inflammatory action which is the result of a simple wound, and which is necessary to the curative process ; this is often unaccompanied with any fever.) We observe it even in the trifling paronychia, in conjunctivitis, in inflammation of a tendon or a bone ; and if

general pyrexia is producible by disease of parts so unimportant to the general relations of the organic arrangement, can we believe that an inflammation of a structure so important as the spinal cord, sustaining such intimate connections with every organ of the body, upon whose integrity every function of the animal depends for its healthy continuance; in a word, so completely commanding the avenues of every feeling, and even of life itself; and an inflammation, too, that to produce all the powerful and Protean symptoms attributed to it, must be severe—can we believe that such an inflammation of such an organ can exist without the slightest appearance of general febrile reaction?

Turning our attention to the usual results of inflammation, we find them stated to be, in most cases, either resolution, supuration, adhesion, ulceration, serous effusion, adventitious deposits, or gangrene, and we look in vain for any of these in this disorder.

It may be urged, interrogatively, whether a low degree of inflammatory action might not exist for a long time in some tissues without proceeding to any of these conclusions, but continue in the part without aggravation or diminution, and producing the existing train of symptoms, until relieved by extraneous means. And in support of such a view, cases of apparent similitude in various other delicate tissues, might be, and indeed have been, advanced. Such as inflammation of the conjunctiva, where the disease often occurs, remains a long time, without producing any of the usual results of inflammation. But I very much question whether it is a fact that this, or any other organ, can be affected for a long time with a true inflammation, especially of an acute character, without its producing some derangement in the part. Either a permanent distention of the blood-vessels, a thickening of the adjacent cellular tissue, adventitious depositions, or adhesions between the parts, it is more than probable will always result. If we come to this conclusion with regard to this, or other tissues of similar grade, we certainly could not do otherwise, when considering one so much more delicate, as is that which composes the matter of the nervous system, or any part of it. We find the disorder, whatever it may consist in, existing, not for a few days or weeks merely,

but for months and years ; and often, after the longest periods of continuance, we have seen it relieved, instantly and permanently, by very mild applications. Such is not the usual course of exalted vascular action in any other part. It may be that it is here guided by new laws, and subject in this peculiar tissue to different limits, but, if so, we know nothing of the proofs.

One other point we must consider in this place, which, perhaps, will be deemed not the least conclusive argument. The most essential part in the curative process of anormal vascular excitement, is the reduction of the *vis a tergo*. This end, obtained by general V. S., has always been considered, and very justly, no doubt, as a requisite of great importance in the treatment of inflammations, either general or local, and is resorted to alike, when it attacks the grossest and the most refined structures, and its beneficial results are almost always apparent. Even in cases of local inflammation, where there appears little or no general excitement of the vascular system, the lancet is often resorted to, and with good effect. But in spinal irritation, as far as my experience goes, and others confirm the position, this remedy, though apparently strongly indicated both by the local symptoms, and those at a distance from the seat of the disorder, not only fails to produce the hoped for result, but often, and generally to the surprise of patient and physician, aggravates the disorder. The tenderness of the spine, and the pain of the distant points supplied by its nerves, do not seem to be increased so much actually, as comparatively, by the increased lassitude and general debility of the patient. Be this as it may, I have never found it a desirable procedure, and have sometimes been led to believe, that its employment has retarded the sanative effects of the proper applications.

In the enumeration of the symptoms of inflammation of the cord, Ollivier, who has written an elaborate work on the diseases of the spinal marrow, states, that a pain *in the affected part* is one of the first noticed by the patient.* Now, so far as my observations have extended, such is not the case with pure spinal irritation. On the contrary, it almost invariably happens, that

* En même temps, ou peu après l'apparition de ces phénomènes, le malade se plaint d'une douleur profonde et plus ou moins vive dans un point de la longueur du rachis, qui correspond à la partie du centre nerveux où siège l'inflammation.

not only is no pain complained of in any part of the spinal column, but very often, and in aggravated cases, surprise will be expressed when the physician asks the question. Often when I have expressed a wish to examine the spine, has the request been met with an incredulous smile; so entirely free from any uneasy feeling has this part continued, during the whole existence of the irritation. And further still, even when pressure is made upon the vertebræ, and all the symptoms in the anterior parts of the body and limbs are increased in severity, very often no painful sensation is experienced at the part where the force is applied. Must not this be considered a powerful evidence in support of the opinion that the capillary vessels of the spinal cord, or its coverings, are not in an inflamed condition? and that the proximate cause of this disease has no material connection with the circulating vessels?

Is there any good reason to doubt that a high degree of functional derangement may exist in the nervous centres, or in the nerves themselves, without the accompaniment of inflammatory action? We believe that functional disturbances of other organs occur without any connection with vascular excitement, and why not here likewise? What is dyspepsia? what is gastralgia? are they not functional disturbances without pyrexia, and even unaccompanied with congested vessels? If such a state of things may exist in an organ so intimately associated with the vascular system as the stomach, surely it cannot be heresy to assert a similar freedom in the medulla spinalis. It may be difficult for many, perhaps impossible for some, to imagine how a disorder characterized by such severity of symptoms as this, can exist independently of inflammation, or at least of vascular turgescence of a less active kind; but it must be a narrow horizon which binds the vision within so small a compass, that one cause only can be seen for all effects. A vascular hobby is surely as liable to be overdriven as a nervous one; by using each in its proper place, both may be preserved for useful purposes.

In the pathological view which I have here very slightly attempted to sustain, I find myself not unsupported by more nervous pens than my own. The quotations below are from the *Med. Chir. Rev.*, the original papers not having met my search. Dr. Craigie of Edinburgh, maintains the position that irritation of the spinal cord is "a

state induced by stimuli, or irritants, in which the natural properties are unduly and unnaturally roused — yet without giving rise to the process of inflammation, or the formation of morbid products." The case which elicits these remarks is an interesting one of metastasis of irritation from the spinal cord at its lower part, producing paralysis, to the brain, producing insanity, the phenomena attendant upon the former location being entirely removed while the brain was affected, and vice versa. He thinks that the morbid phenomena "proceeded from irritation of the spinal cord, or its envelopes, or, perhaps, (and he here lapses somewhat into the humoral pathology,) to speak more to the fact, from a languid or inert state of the circulation within the rachidian vessels, and a consequent congestion, which first irritated, and then compressed slightly the spinal cord, and the origins of the nerves." Passive congestion may be readily granted as a reasonable result of the functional derangement constituting the disease under notice ; nevertheless, I believe this state of irritation may, and often does, exist without any vascular disorder whatever, being of a purely nervous character.

Dr. Kennedy, in his valuable and practical Treatise on the Cerebro-Spinal Disorders of new-born Infants, in speaking of the convulsions of this class of patients, is made to utter the following sentiment in the Journal just named : " That convulsions can take place without irritation of the brain or spinal marrow at the moment, few practitioners will now aver. But the nervous centres may be irritated without being *inflamed or changed in structure.*"

It will be found a much more difficult task to define in words the exact condition of the parts so as to make it understood by a reader, or even by one's self, than to advance reasons against the phlogistic theory. The pathology of purely nervous diseases is of a character, which may not easily, I imagine, be put down in set forms of speech ; the physiology of this tissue is too obscure to allow the hope of ever comprehending the nature of the changes of which it is the seat when diseased. I will, therefore, spend no more time on this division of the subject, than to remark upon one or two other points connected with it.

That law of the nervous economy, by which an irritation occurring at the origin, or any part of the course of a nerve, produces its

sensible effects only at the sentient extremity of that nerve, is now well established, though it may be impossible to explain its *rationale*. Not the least interesting fact of this pathological law is, that the *sensations* resulting from this irritated condition, are usually such as are experienced by *bona fide* disorders of the organs or parts, supplied by the irritated nerves. This may be accounted for in this way. The nerve which is furnished to each organ from the spine, is capable of conveying only one kind of sensation, which is suited to its wants and habitudes, the sensation of each organ corresponding to its position and requirements; so when the origin of the nerve becomes disordered, it can only convey the peculiar sensation which it was designed to have, thus giving rise to the very plausible supposition of a disorder in the organ itself, when it is, in reality, seated wholly at the opposite extremity of the nerve.

Another very important particular connected with the pathology of this disease, is one which can scarcely be too strongly urged upon the notice of medical men,—one of whose reality there can be no doubt, if the concurrent testimony of various authorities is to be credited. I allude to the liability of the simulated disease to run into, or produce, actual organic disease. There is strong reason to believe that disordered actions of various parts very often have their origin solely in derangement of the nervous influence with which the organs are supplied, a derangement which, if checked in its early stages, would leave no trace upon the organic structure. Numerous authors testify to their belief in the nervous origin of many serious organic and functional diseases, and some give to the nervous system the *initiatory* in all, or nearly all, morbid actions. I confess that on a calm review of the successive steps in the route of morbid changes in most diseases, it is not easy to avoid arriving at the conclusion, that in the nervous system must lie the primary morbid action. It must not be forgotten, however, that the condition of the blood and other fluids has an influence over the nervous system, and the original cause may exist in them, though imperceptible to our senses. It is, however, universally admitted that irritation of the nervous centres, if long continued, may be the exciting cause of structural disease in other organs, and it behooves the physician to be ever watchful to detect the latent origin of the morbid action if pos-

sible, especially when it occurs in the part so much more easy of examination, as is the spinal medulla, than the other nervous centres.

TREATMENT. — In the treatment of spinal irritation, the first principle to be kept in view is that of counter-irritation; and the second indication is to sustain the energy and tone of the nervous system, and the spinal cord in particular. Some of the various applications which a perusal of the preceding cases will show to have been adopted, would seem to act as local depletants, and an apparent argument may be drawn against my views of the pathological condition of the nervous trunks in this disease; but this I cannot admit, for reasons which will appear as we go along. Among the most speedy of the means of relief, cups and leeches have occupied generally the first rank, but I am strongly inclined to the opinion, that the benefit derived from them is not more attributable to the loss of blood, than to the irritation produced by their action on the skin. Counter-irritation alone, produced by rubefacients or excitants applied to the skin over the diseased part of the medulla spinalis, has almost always been found to produce as great and decided utility as those means by which blood has actually been drawn, the only difference being the rapidity, and, in some instances, permanency of execution, which are in favour of the latter. In cases of much severity, therefore, the better course is to advise the application of cups or leeches, which will always be found productive of decided benefit. Disappointment, however, will occasionally attend this application, i. e. the subsidence of the internal irritation will not always be commensurate with the external. A repetition of this, or of some other application, will therefore be necessary. Some authors have advised the application of dry cups, and in their hands much advantage has been derived from their use. I have no doubt they would prove serviceable in many instances. General bleeding, as has before been stated, will mostly prove disadvantageous, even in those cases in which its indication may appear most decided. Much caution must, therefore, be exercised by the practitioner; for an incorrect practice on this point may add materially to the pains and disability of the patient. The same objections are applicable with

equal force to the use of general depressing remedies, as tartar emetic, ipecac, &c. This disease is *not* of an inflammatory nature, and all medicines or applications which act upon that principle, will be found injurious.

Proceeding then upon the view which we have laid down as proper for the treatment, the next means of relief which attracts attention, is that of vesications by the various means in general use. First comes the fly blister. This must be ranked among the most valuable of this class of remedies. The action which it produces upon the skin, appears to be of precisely the character desired, — a powerful irritation, with relief of the local blood-vessels, without extending beneath the cutaneous structure. The effect of this application will frequently be observed to be an increase of the pains at the commencement of its operation; but when the vesicating action has become fully established, the usual result will be found of the most pleasing character, a rapid and complete subsidence of all the pains, and of the feelings of prostration. Occasionally, the irritation of the blister seems to increase the medullary irritation, but with the healing of the former, the latter will diminish and gradually disappear; and I have rarely, if ever, been disappointed in my anticipations of relief from this remedy in this disease. In the event of the failure of leeches or cups to procure all the benefit desired, the application of a blister over the scarifications or leech-bites may always be deemed sufficient to complete the cure, so far as counter-irritation will do it.

All that is wanted of a blister is that its action should be more speedy than it usually is; that the patient should not be obliged to wait six, eight, or twelve hours before he can receive its benefit. We are in possession of an article which will produce an instantaneous vesication, the value of whose irritation is equal to that of the ordinary vesicatory: I allude to aqua ammonia fortis. Not long since, Dr. Granville of London, after a preliminary publication of 100 cases of nervous and inflammatory diseases, in which he asserted the extraordinary value of a new lotion which he had invented, as capable of producing an instantaneous cure when applied to the skin, and after being closely pressed on all sides to give to the profession the composition of this wonderful compound, which was to work such extraordinary

changes in some part of the practice of the healing art, announced it as composed of

Aq. Ammon. . . Tinc. Rosmar. . . Tinc. Camph.

The aq. ammon. according to his formula is to be made of extraordinary strength — none of the usual forms of the shops are of sufficient strength — its specific gravity must be .872 — 100 parts of which will contain 33 parts of real ammonia, according to Sir H. Davy's tables, which is three times the strength of the liq. ammon. of the London Pharmacopœia. The strongest aq. ammon. which I have seen in the shops here, which is probably as strong as any usually made, had a sp. gr. of .890, containing about $27\frac{1}{2}$ per cent. of ammonia. It may without fear of contradiction be asserted, that it is to the ammonia which it contains, that Granville's lotion is indebted for its property of producing a rapid irritation and vesication of the skin, and it may be well doubted whether the other ingredients have any share whatever in the effects resulting from its use. Camphor can possess little or nothing of an irritating property when merely laid upon the skin, and as for the rosemary, its rubefacient influence must be of a very trifling character, and in connection with the ammonia, its power must be about equal to that of a rushlight brought in to aid the sun. What then in theory is the effect of the admixture so long kept a secret, and now boasted of by its inventor and others of a more doubtful character, as a wonderful antidinous lotion? Can it be anything more than this, that the ammonia originally so powerful, is diluted to nearly one half its original strength by the addition of the two tinctures? The proportions of the three articles forming *the* lotion, are four-eighths of the aq. ammon. three-eighths of the spt. rosemar. and one-eighth tinc. camph. in the milder preparation, and in the stronger there is an addition of another eighth of the aq. ammon. in the place of one of the rosemary. Alcohol will absorb ammoniacal gas, though probably not in so great a degree as water, and the necessary consequence of an admixture of ammonia and alcohol, must be a diminution of the strength of the former. Now when aq. ammon. of the sp. gr. of .872, is mixed with an equal weight of alcohol, though the latter holds other matters in solution, it will at a liberal calculation, reduce its strength one-third, when its sp. gr. will be about .930, and will contain about 17 per cent. of pure

ammonia, or about 10 per cent. *less* than the strong aq. ammon. of the shops. And what is the effect produced in practice? precisely what would be anticipated from this view. I have tried the lotion prepared by Crossman of Philadelphia, and also the strong ammonia of the shops, and a comparison of their effects is decidedly in favour of the latter. Its action is more rapid, and equally effective without being more painful. The grand flourish therefore in the directions for its preparation, made to display the virtues of this lotion, can have no foundation in science, and can only be "ad captandum vulgus." Moreover the boasted invention contains no new principle; ammonia has been employed as an external stimulant, and indeed as a vesicatory, for many years. A member of our Society tells me he blistered with it 10 years ago, and in France its action, in this respect, has long been acknowledged.

But to return from this short digression, we have in ammonia a powerful remedy for the immediate relief of the malady of which we are speaking. Applied to the cutaneous surface by means of a compress well moistened with it, its rube-facient effect is instantly perceived by a burning sensation. In fact I have known the result to be produced before the compress has touched the skin—the vapour alone irritating the surface. In from two and a half to seven minutes, if closely applied, a full blister will be raised. In my own person, after the application of the strong aq. ammon. for two minutes and thirty seconds by the watch, a free vesication was the result. The amount of irritation can be thus nicely regulated by occasionally inspecting the skin beneath the compress. The effect of external irritation thus induced, though it may not amount to a vesication, (which in fact is not often desirable,) will be generally a relief to all the sufferings in the parts supplied by the nerves over which the new action is produced. If the case should be of a mild character, the irritation of the medulla being of a light degree, a less active irritant over the tender part will probably be sufficient. For this purpose I have used a slightly irritating lotion composed of equal parts of aq. ammon. and spts. tereb. with occasionally the addition of tinc. camph. which is to be *rubbed* on with a piece of flannel. This produces but a transient irritation of the skin, but often will be found sufficiently active.

Case XVI.—Spinal Irritation circumscribed. Cured by a lotion.—While writing this part of the paper, I was called to a lady who supposes herself to be about four months *encéinte*, complaining of a gnawing pain in the epigastrium, pressing down pains within the ileum of each side, extending to the pubis, and the peculiar lassitude and listlessness of this disease. An examination of the spine of which she makes no complaint whatever, discovers the third, fourth, and fifth dorsal, and some of the lumbar vertebræ to be quite tender, and pressure upon them causes an increase of all the morbid sensations just described, and the lassitude particularly is so much aggravated, that she is obliged to rest a few minutes before she recovers energy enough to answer my questions. Depression of spirits accompanies these appearances in a marked degree. The above liniment was directed to be used, and two or three applications of it produced a decidedly favourable impression. Its continuance for two or three days removed all these symptoms.

Sinapisms may sometimes be employed with benefit, but my experience with them is not favourable. The irritation which they produce does not seem to be of a character suited to the disease. I have sometimes used them when a prompt action was required, and no better means was at hand.

With respect to tartar emetic ointment, I am decidedly opposed to its general employment as a counter-irritant in this disease, although others have spoken favourably of it, and recommend its use. The ulcerative action which it causes is not required for the removal of the internal irritation, for, as has been more than once hinted here, depleting remedies are not those best calculated for this end—and in the deep subcutaneous action of this ointment, we have not only the local operation much more severe than is necessary, but the general operation of the antimony taken in by absorption is adverse to the curative process, for reasons before given. The counter-irritation required is such only as will affect the cutaneous vessels, the pathology of which operation has been suggested by Dr. Annan of Baltimore to be this:—the cutaneous tissue has greater sympathy with the spinal cord, from the large number of nervous filaments distributed upon it, than the subjacent tissues, especially the subcutaneous, which has but few nerves in a given space, the nerves

passing through it in comparatively large branches: and from the sentient extremities of the nerves being ramified upon the skin, it is very important that inflammation should be kept up in it with as little injury to its sensibility as possible. Now it is evident that the antimonial ointment not only produces an ulcerative action of the subcutaneous tissue, a more profound action than is at all necessary, but in doing that, it must necessarily destroy the skin, whereby all the advantages derived from its sympathetic influence are totally lost. With regard to other remedial processes, of a similar character, such as issues, moxas, the actual cautery, &c. the same objections are applicable, except that of the specific action of antimony on the system. In diseases of the medulla of a decidedly inflammatory character, where disorganization or some other equally serious result is likely to ensue, such a course of treatment is evidently proper and necessary; but in such a disease as spinal irritation, which is of a purely nervous character, I have too often noticed the worse than useless influence of such profound applications, not to be earnest in my condemnation of them. Almost all writers who have used the antimonial ointment in this disorder remark, that when its peculiar action commences, the disease is evidently aggravated, and this aggravation continues until the ulcerative process begins to decline; and then, but not till then, symptoms of amendment begin to be perceived.

Croton oil presents itself as a very attractive article to excite counter-irritation in this disorder. The effect which it produces upon the skin appears of precisely the character required, being sufficiently prompt and decisive without destroying the cutaneous tissue. I have employed it in one case only, but in that with a very happy result, and am strongly disposed to urge its further trial.

Dry friction with the hand, or with a piece of flannel, continued 15 or 20 minutes, with moderate pressure, until a rubefacient appearance results, will give great relief in many instances, especially with those whose skin may be too sensitive to bear a sufficient action with any of the foregoing irritants. The advantage with this application can, of course, be only temporary.

These articles constitute all that I have been in the habit of employing as external applications, and having uniformly suc-

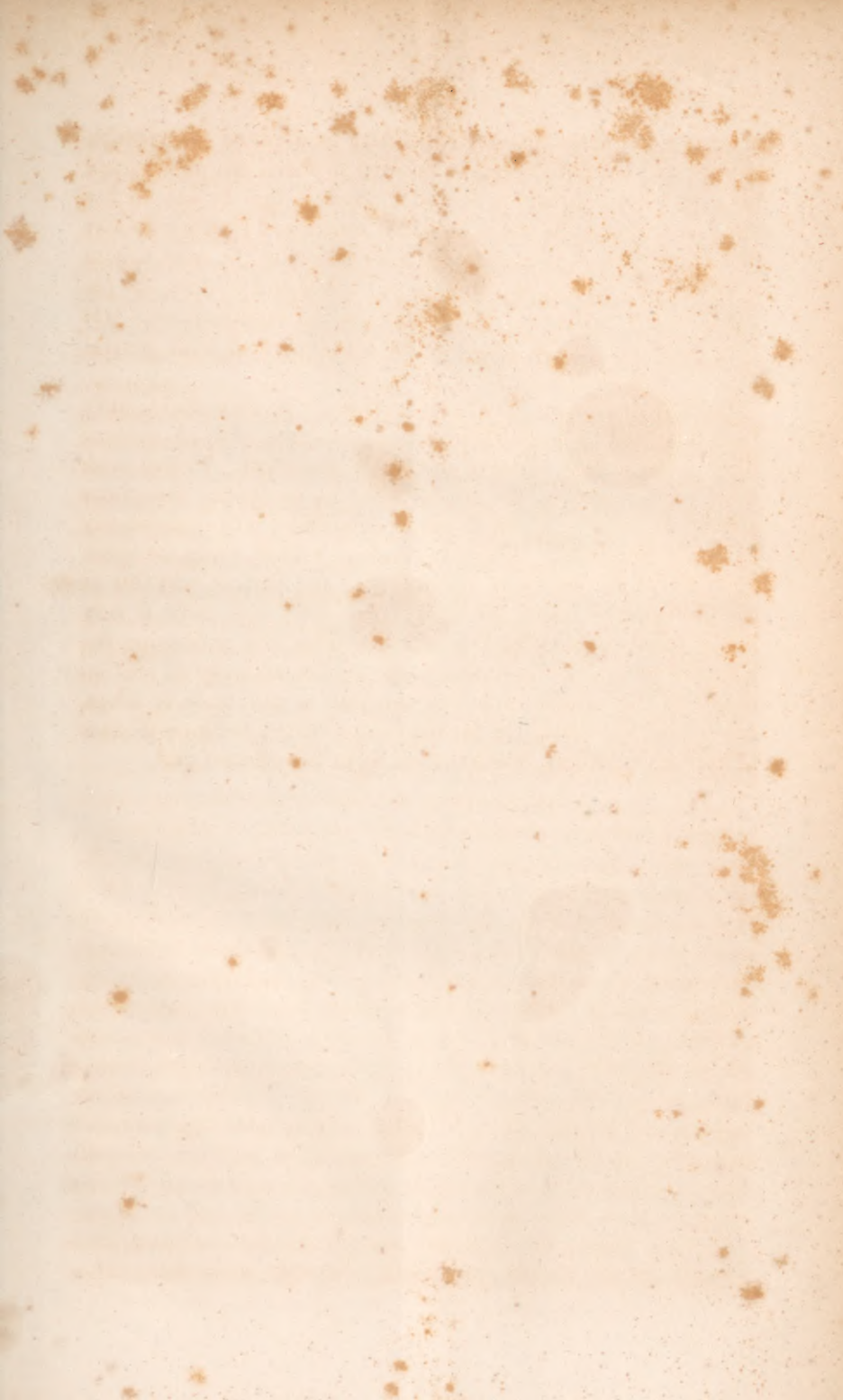
ceeded with them in allaying the severity of the most severe forms of this disease, I have been spared the necessity of looking for others. There are, however, some others which seem to have been active adjuvants in the hands of other practitioners, though none possess more valuable properties than those I have enumerated. In addition to, and immediately after the application of cups or leeches, Dr. Enz employed embrocations of mercurial ointment, and he thinks he has derived much advantage from its use.

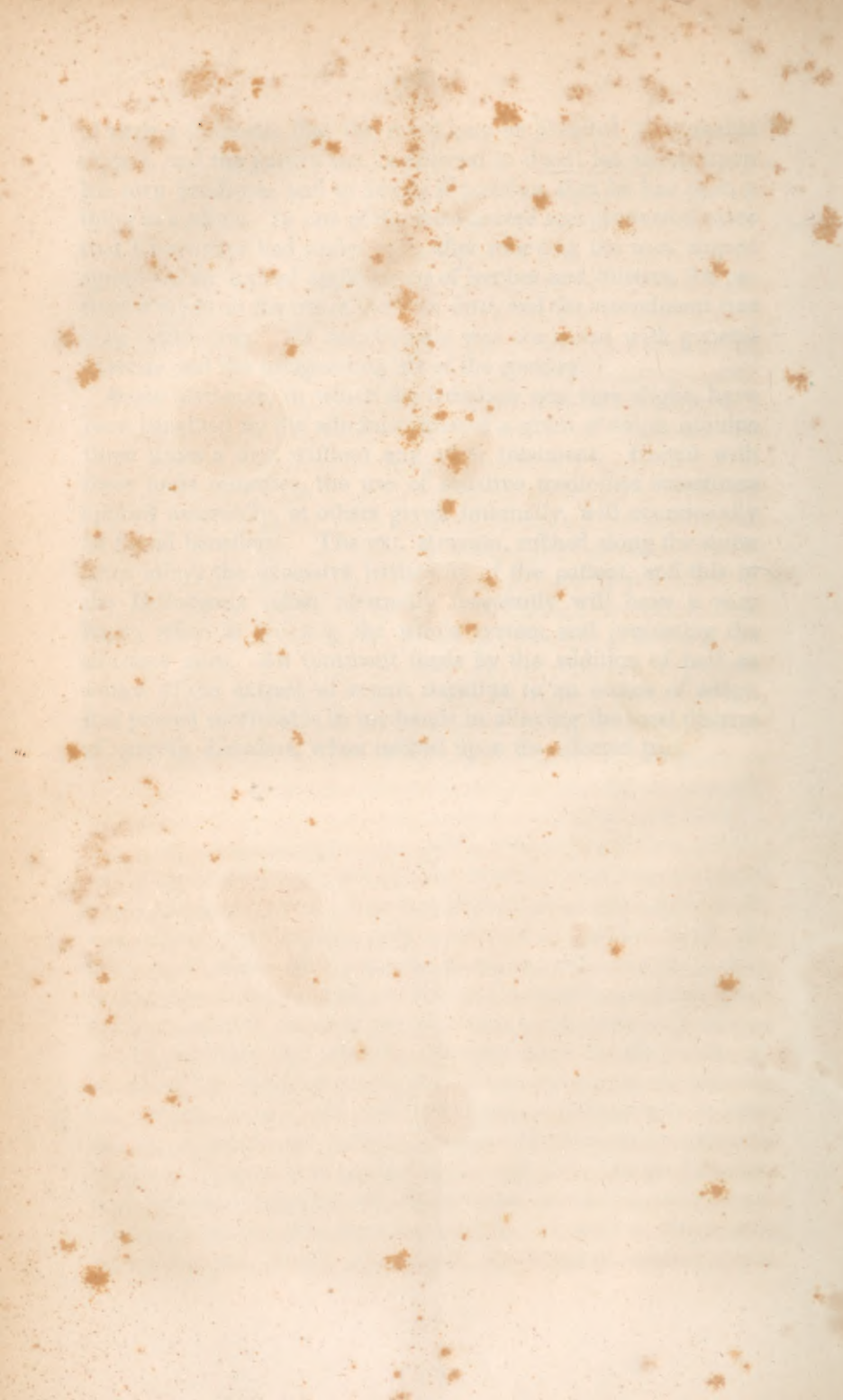
Respecting the internal treatment of this disease, a few words are necessary. If the practitioner has reason to believe that the intestinal canal is overloaded, a good laxative dose will be very proper at the outset of the treatment, or if he thinks that the primary cause of the spinal irritation may reside in the bowels, a drastic cathartic may be administered; but I am of opinion that in idiopathic spinal irritation, little or no benefit will be derived from active purgation. The great indication in the *general* treatment is to sustain the energy of the system, and powerful purgatives have usually the contrary effect. If the character of the symptoms should be such as to excite apprehension of inflammation of the cord, these artificial intestinal irritations, will be indicated, as in other inflammatory disorders, but not so with diseases of the nature of simple spinal irritation.

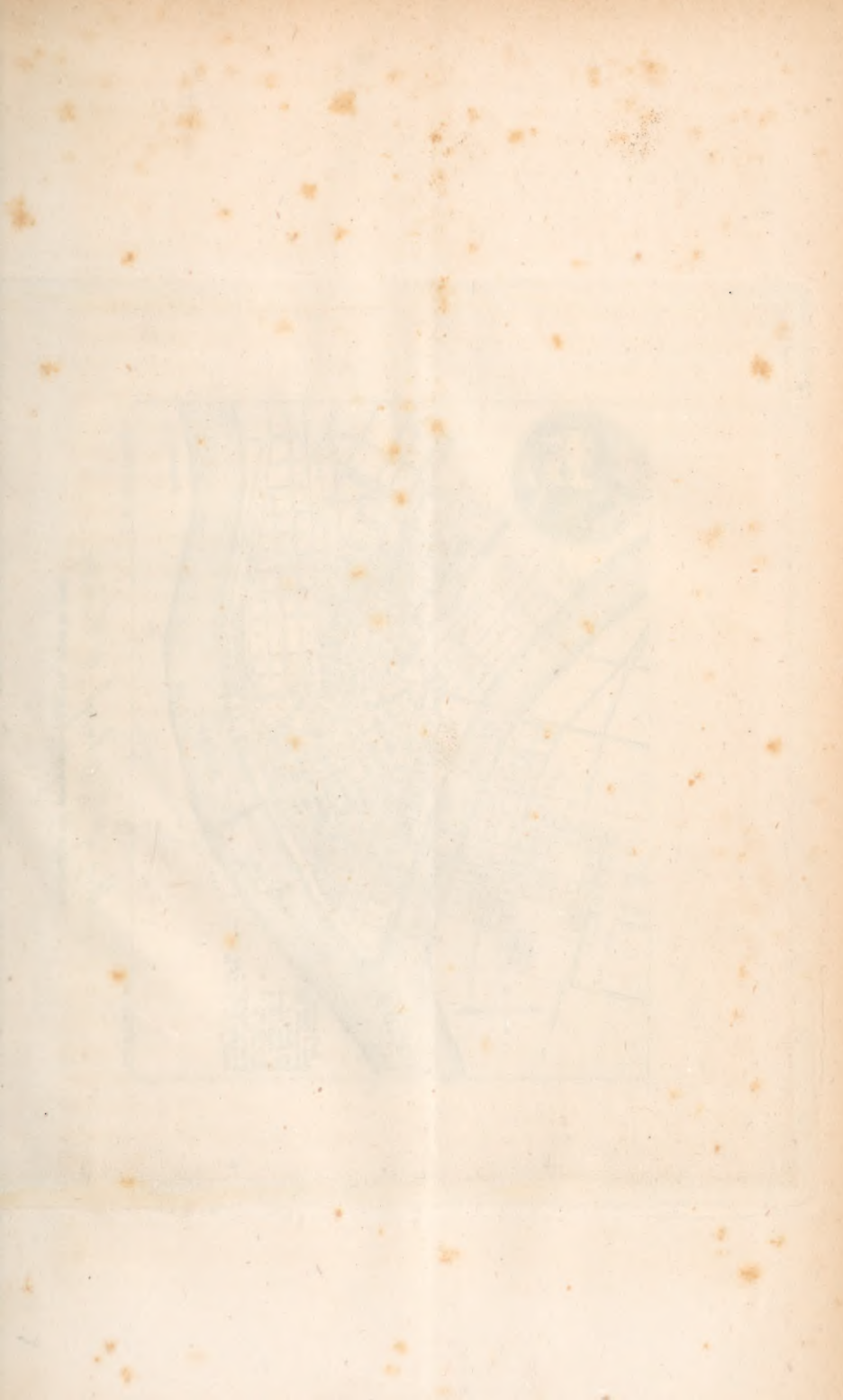
After the preliminary measure of a cathartic, and after obtaining all the available benefits of the local applications to the spine, the treatment which I have found most useful has been of the tonic kind. The administration of carb. ferri.—of quinine—of the bitter woods. A nutritious diet; cold bathing; at the *seaside if practicable; daily ablutions of the whole body with cool water*; avoidance of too warm clothing, a hair mattress at night, with moderate exercise in the open air, will be found to be productive of signal benefits. During the existence of the disorder in its more severe form, active exercise will be found not only generally impracticable from the pain it excites, but likewise injurious to the disease. The spine seems to require rest and support; but after the symptoms have been allayed, and the counter irritation has subsided, the addition of gentle exercise in the air, on foot or in a carriage, will greatly assist the other parts of the regimen. Especially, should the exercise be

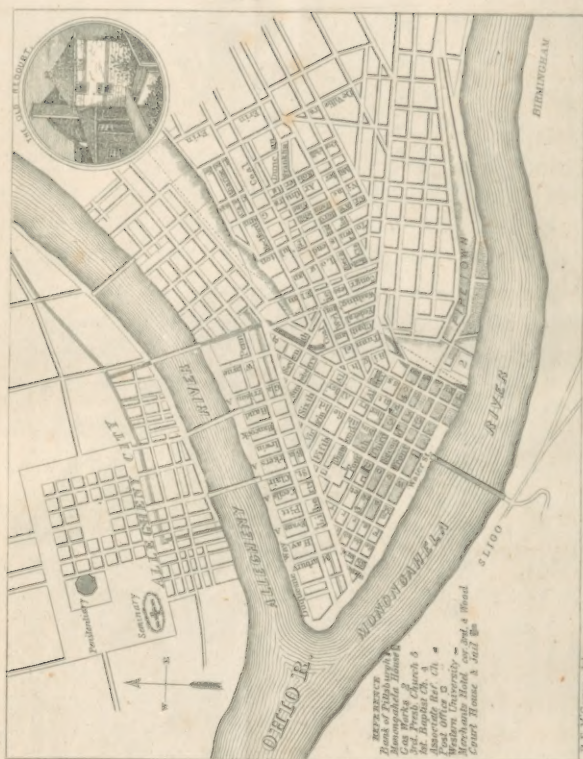
of such a character that the mind may be diverted to agreeable objects, and the patient not be allowed to dwell too much upon his own condition, and to forget, if possible, that he has such a thing as a spine. In one of the most severe and protracted cases that I have ever had under care, after relieving the most urgent symptoms by topical applications of leeches and blisters, the patient was put on the use of the steel dust, and the amendment was very satisfactory. Its employment was conjoined with general exercise and the invigorating air of the country.

Some instances, in which the irritation was very slight, have been benefited by the administration of a grain of sulph. quinine three times a day, without any other treatment. United with these tonic remedies, the use of sedative medicines sometimes applied externally, at others given internally, will occasionally be found beneficial. The ext. stramon. rubbed along the spine often allays the excessive irritability of the patient, and this or the Belladonna taken internally frequently will have a very happy effect in quieting the whole system, and promoting the ultimate cure. An ointment made by the addition of half an ounce of the extract of aconit. napellus to an ounce of adeps, has proved serviceable in my hands in allaying the local distress of nervous disorders, when rubbed upon the affected part.









Eng^d by W. Gillespie.

Map of Pittsburgh & Vicinity

Designating the portion destroyed by fire, April 10, 1845.

M. E. McGowan, del.